

**European Association of Establishments for Veterinary Education**

and the **Federation of Veterinarians of Europe**

**European System of Evaluation of Veterinary Training**

**REPORT ON THE VISIT TO THE FACULTY OF  
VETERINARY MEDICINE OF LIÈGE, BELGIUM**

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## **INTRODUCTION**

The Faculty of Veterinary Medicine (FVM) of the University of Liege was founded in 1836 as the first veterinary school in Belgium. With the foundation of another but Dutch-speaking veterinary school at the University of Ghent in 1933, the FVM was destined to predominantly serve the French speaking part of Belgium. In 1969 it became part of the University of Liege. The FVM was moved from its former location in Brussels to its present location at the Sart Tilman campus of the University of Liege in 1991. The campus is shared by seven faculties, including the Faculty of medicine.

The Veterinary Faculty was designed to comfortably accept 140 students per year, it is under the rules of and supported by the Government of the French-speaking Community (CFB).

Student admission is regulated by government imposed legal regulations; similarly introduction of the Bologna Process is required by law, leading to two 3-year study cycles. As a specificum the first 3-year cycle can be taken at four locations, the Catholic University of Louvain (UCL), the University Faculties of Notre-Dame de la Paix Namur (FUNDP), the Free University of Brussels (ULB) and the University of Liege (ULg), Faculty of Veterinary Medicine.

This year's evaluation by the EAEVE/FVE is the third one following the evaluation in 1985 and 2000. Other than then the previous two evaluations this evaluation was the first one to include veterinary education during the first cycle at FUNDP, UCL and ULB.

## **1. OBJECTIVES & STRATEGY**

### **1.1 Findings**

The strategic plan of the faculty aims at ensuring that every student graduating to a master in veterinary medicine (veterinary surgeon) meets the day-one-skills as outlined in Annex IV of the SER and as accepted by the EAEVE General Assembly in 2008.

The FVM further expects all its departments to respond to social needs and requirements and hence accepts its social role within society. Special emphasis is given to animal ethics, public health, clinical competence, tropical and marine mammal veterinary medicine.

It aims towards a research orientated teaching and many research projects have generated patents and /or spin-offs.

In doing so the FVM wants to improve its visibility, also within the structure of the ULg.

The strategic objectives of FUNDP, UCL and ULB are to educate BA graduates in a multidisciplinary environment and to meet all the requirements for the 2<sup>nd</sup> cycle education at the FVM.

## 1.2 Comments and suggestions

The FVM has developed clear objectives and an underlying strategy. However, the plethora of students entering the 2<sup>nd</sup> cycle and the shortage of academic and non academic personnel so far were an obstacle to fully reach the objectives laid out. However, the faculty is of the opinion that the objectives will be met within the next two years and that the respective standard will be maintained unless there is another dramatic increase in student admission.

According to the impressions of the team FUNDP, UCL and also ULB have reached their objectives.

## 2. ORGANISATION

The four universities involved in veterinary education in the French speaking part of Belgium are:

- the Free University of Brussels (ULB) ;
- the Catholic University of Louvain (UCL).
- the University Faculties of Notre-Dame de la Paix in Namur (FUNDP)
- the University of Liege (ULg);

These universities belong to three different academies, encompassing a total of nine universities.

At FUNDP and UCL the veterinary curriculum is managed by the Faculty of Sciences, at the ULB by the Faculty of Medicine and at the ULg by the Faculty of Veterinary Medicine. The latter is the only one organising the whole curriculum.

### 2.1 Findings

In belonging to different universities, the faculties are independent of each other. There is no formal organisational link between the four establishments supervising veterinary education.

FUNDP (Faculty of Sciences): The veterinary Bachelor degree is supervised by one department only (department of veterinary medicine) with help of an internal curriculum commission, so that there is a good coordination between all taught topics. The six Faculties of the university are controlled by the Board of Trustees.

UCL (Faculty of Sciences): Starting from January 2009, the whole organization of the university is changing. Among the faculties, the teaching departments and units are progressively suppressed. As with other curricula the 1<sup>st</sup> degree (BA) of veterinary medicine is under supervision of a "school", controlled by a School Council and Board. All "schools" are managed by the Faculty Council and Board. There is a "Sector Council" of Sciences and Technologies, (grouping the Faculty of Sciences with

Engineering and Bioengineering). The Board of Directors and the Academic Senate are controlling all sectors at the university level.

ULB (Faculty of Medicine): The 1<sup>st</sup> degree of veterinary medicine (BA) is organized and supervised by a veterinary program commission. At the faculty level, the global teaching coordination is within the responsibility of the Faculty Council. A “special commission” (appointment of teachers) and a permanent teaching commission (global teaching policy) are also involved in the decision-making process.

ULg: There are seven departments at the Faculty of Veterinary Medicine (FVM). The veterinary teaching hospital (CVU) was recently identified as a single unit, but till now the two clinical departments (DCA and DCP) still seem to operate on their own. Among the advisory bodies at the FVM, there is a council for the 1<sup>st</sup> degree (BA), a council for the 2<sup>nd</sup> degree (MA), and a special “reform” committee which tends to become permanent and to give recommendations for changes concerning the whole 6 year curriculum.

The Faculty Council includes all academic personnel (53%), non-academic staff (27%) and students (20%) and is responsible for all academic and educational matters. It elects the dean and assistant dean for a 2-year term. The dean, who is the president of the faculty council, allocates annual operating cost in consultation with department heads. He or she may also allocate temporary scientific positions. At the university level, the deans form a council and an academic member of the FVM is elected in the Board of Directors.

## 2.2 Comments and suggestions

In spite of their different organisations and governing bodies, the four establishments seem not to encounter specific problems concerning the goals of the veterinary curriculum, organisation and funding. The veterinary curriculum is well integrated and accepted within FUNDP, UCL and ULB. However, three points have to be mentioned.

- Within each establishment at FUNDP, UCL and ULB the internal organisation should guarantee that an adequately adapted ratio of full-time veterinary surgeons among the teachers will be maintained (see also 10.2).
- At all four places, the veterinary profession is not or only moderately involved in the advisory bodies discussing further development of the curriculum and other needs. Some respective changes should be envisaged.
- At the FVM, ULg, the CVU (veterinary teaching hospital) should become increasingly responsible in controlling its facilities and staff to ensure a better mutualisation and overall efficacy.

For further comments and suggestions see 4.1.2.

### 3. FINANCES

#### 3.1 General

Main funding of the ULg, ULB, FUNDP and UCL is by the CFB (French – speaking community of Belgium); 75% of the allocation is derived from the number of students enrolled for a BS/BA resp. a MS/MA study cycle.

Students are graded according to the discipline and study cycle. In veterinary medicine a Bachelor represents a “B”–level (approx. 12.000.-€/year) and a Master a “C”–level (approx. 18,000.-€/year). The admission fees are around 800.-€ per year.

The general budget of the ULg is further affected by the fact that the ULg is the proprietor of an endowment in real estate for which it carries out sales, purchases and transformations on the authority of the Board of Directors (CA) alone. The ULg further receives some basic funds for the maintenance of buildings managed by ARI (Administration des Ressources Immobilières)

ULg receives substantial resources for research allocated by its Research Council after selection of research projects submitted by research teams. However, most research grants are funded by extramural organizations, both public and private.

There is a decree of the French-speaking Community from June 2001, asking for an overhead of 15% concerning all extra income; however, there are several exceptions.

#### 3.2 Findings

**FVM, ULg:** Income/revenue of the FVM is based on three columns,

- a) funds provided by the government (funds provided directly to the FVM, funds administered outside the FVM),
- b) income generated from services and
- c) research grants,
- d) yielding a total of about 24 M€ in 2007.

As with any other faculty, allocation of government provided operational expenditure to the FVM is a result of negotiations between the Rector and the Dean. The joint proposal has to be approved by the Board of Directors (CA). In addition, the FVM receives a special budget to cover specific expenses like waste disposal, vehicles, laundry etc. Depending on the arrangements made, the FVM may have to retrocede a defined percentage of the funds obtained from various sources. Thus in 2007-2008 the FVM retroceded to the ULg 12% of the income from services provided and 3.8% from the resources generated by research programs.

The “plethora” of students was recognized since 2001/2002 as a special issue at the FVM, ULg. This has led to the provision of exceptional credits which were mainly used for the creation of new teaching positions; these credits diminish proportionally to the establishment of new permanent positions.

The FVM operates under the centralized SAP-based accounting and recording system of the ULg. It has no autonomy with regard to salaries but has a satisfactory de-

gree of autonomy in respect to the teaching budget. Thus the FVM has drawing rights of about 2.5 M€ out of about 12.5 M€ government funds provided to the faculty.

FVM operational credits are distributed by the dean to the different departments on the basis of the teaching load (clinical and practical education receiving a preferential treatment) and number of students concerned. A proportion of operational expenses is retained by the Dean and used for general services and administration. Department councils distribute in an explicit and verifiable way the amounts devoted to educational activities within each department.

A unit requesting heavy equipment has to raise third part funds before asking for institutional financing. Purchase or replacement of heavy equipment is then, depending on the implication, mainly done through a system of mixed funding comprising the FVM (educational budget), the Research Council (research equipment) and the central administration of the ULg.

**FUNDP, UCL, ULB:** Funding follows the same basic principles as indicated above for the FVM, however, only accounting for cycle 1 (BA– level).

### **3.3 Comments and suggestions**

In general the units involved in veterinary education at FUNDP, UCL and ULB and the FVM do not complain about a lack of financial support concerning operational expenditure. This support in combination with the research grants acquired is reflected by the in part excellently equipped clinical and non clinical departments.

However, funds received from CFB for basic maintenance of the FVM buildings are insufficient. As is laid out in Chapter 6, a strategy must be developed to secure adequacy and maintenance of the buildings provided for veterinary education.

## **4. CURRICULUM**

### **4.1 General**

There is no nationally-defined curriculum for veterinary medicine. The layout of the curriculum follows the “Bologna-process”. Thus the six-year curriculum is divided into two three-year periods, a Bachelor (BA) and a Master (MA) period (Cycle 1 and 2).

The Bachelor degree (1<sup>st</sup> 3-year cycle) can be obtained at the four different universities: ULg, FUNDP, UCL and the ULB. Other than requested by the Bologna Process the degree of a Bachelor in Veterinary Science does not imply any professional qualification.

Concerning the 1<sup>st</sup> cycle all four establishments are highly motivated to ensure a high teaching quality, especially in years 2 and 3. The first year is devoted to teach the fundamentals to a high and rather uncontrolled number of students with the students from the veterinary section being mixed with either students from the Faculty of Sciences (FUNDP and UCL) or from the Faculty of Medicine (ULB).

The Master degree is only offered by the FVM, ULg. Due to the national regulations, all students having obtained the qualification of a Bachelor in Veterinary Sciences must be accepted by the FVM, ULg if they apply for the 2<sup>nd</sup> cycle. Consequently the number of students at the FVM, ULg, roughly doubles in the 2<sup>nd</sup> (Master) cycle.

The total curriculum comprises 4936 hrs, including 560 hrs supervised extramural training. All subjects listed in EU-Directive 2005/36/EC are covered.

#### 4.1.1 Findings

The group size, the ratio of theoretical vs. practical teaching and the overall equipment used during the practicals are acceptable. However, the total amount of frontal teaching (>2000 hrs) must be considered to be at its upper limit.

Due the national university-funding system, which is largely based on the number of students enrolled, there is a natural competition between faculties organizing the 1<sup>st</sup> cycles. That situation creates a beneficial emulation but could also lead to a not acceptable lack of coordination, not only affecting the types and contents of subjects taught (as a result of individual exigencies) but also concerning the method by which knowledge is controlled.

As an example, there was a unilateral shift of subjects (e.g. parasitology) taught so far during the 2<sup>nd</sup> cycle, to the 1<sup>st</sup> cycle by the FVM, ULg, causing problems at the other three establishments. Such a situation could be detrimental for the 2<sup>nd</sup> cycle students.

Major differences concerning the examination methods result from the fact, that examinations are mainly oral at the FUNDP, UCL and ULB while there are written exams (multiple choice) at the FVM, ULg.

#### 4.1.2 Comments and Suggestions

According to the EU Directive 2005/36, the knowledge and skills accumulated during at least 5 years of the curriculum should be commonly defined by all institutions involved in the veterinary curriculum.

##### **Suggestion: for a Category 2 deficiency**

In view of the lack of communication between the four establishments there is a strong recommendation to establish a steering group composed of representatives of the four establishments delivering the 1<sup>st</sup> cycle (BA) education in veterinary science.

This group should:

- Define central aims of each of the three years of the first cycle curriculum and how to reach them.
- Define the method of examinations, mainly for those exams which must be passed in order to continue in the next year of the curriculum.
- Assure a comparable level of knowledge and skills for the students at the end of the 1<sup>st</sup> cycle.

## **4.2 BASIC SUBJECTS & SCIENCES**

### **4.2.1 Findings**

The basic subjects and the basic science subjects are mainly given during the first cycle.

Between the four different universities (ULg, ULB, UCL, FUNDP) the type of subjects taught and the time allotted during the first cycle exceeds the minimum overlap of 60% required by Belgian authorities. However, all of them show an individual approach to the subjects delivered and the control of students in respect to the acquired knowledge (see above).

Representatives of FUNDP, UCL and ULB further stressed that during 1<sup>st</sup> cycle teaching examples related to veterinary medicine were given whenever possible. However, there are also some restrictions as anatomical sections are mainly done on sheep, ponies and dogs. Dissection of cattle is rare, of pigs almost inexistent. Otherwise anatomy in general is taught on pedagogic models, mostly fresh but also frozen/thawed corpses for dissection and often aided by multimedia teaching tools.

At FVM, ULg, veterinary students are among themselves during the three years of the 1<sup>st</sup> cycle. In ULB, UCL and FUNDP teaching during year one of the 1<sup>st</sup> cycle is organized together with 1<sup>st</sup> cycle students of other disciplines (see 4.1). Thereafter veterinary students are more or less among themselves.

However, from the discussions the team had with students and teachers and the investigations performed, it did not become obvious that FUNDP-, ULB-, and UCL-students would have basic problems when entering the 2<sup>nd</sup> cycle at the FVM, ULg. All students emphasized the enthusiasm of their teachers and feel well prepared to follow the 2<sup>nd</sup> cycle at the FVM, ULg.

In practicals the student-teacher ratio is generally acceptable. However, during the visit the team became aware of the situation that some practicals are not so much practicals but rather multimedia-based self learning sessions. In order to maintain a proper group size and depending on the size of the room, many practicals have to be repeated several times (up to 14 times, see also 6.1.2).

All four establishments have their “hot spots” allowing students to make their first steps in a research oriented surrounding, already during the 1<sup>st</sup> cycle.

### **4.2.2 Comments and suggestions**

While veterinary students are among themselves during the whole 1<sup>st</sup> cycle at the FVM, ULg, there is a less strict separation at FUNDP, UCL and ULB. This may sometimes lead to less examples taken from veterinary medicine and some underrepresentation of some animal species in anatomical dissections, but may strengthen a more general understanding, leading to a broader knowledge of comparative aspects and open the students mind to other people and studies. The interdisciplinary character of the teaching staff at these three places has an inherent and high potential to

improve learning and learning tools (e.g. in biophysics and immunology). Also the need to share a practical with students of other disciplines, e.g. histology with medical students, may offer an advantage. However, an “adapted” ratio of full-veterinary surgeons among teachers should be maintained (see 2.2 and 10.2).

On the other hand, with the interaction of 1<sup>st</sup> and 2<sup>nd</sup> cycle students at the FVM, ULg, a strong advantage is displayed there.

In allowing 1<sup>st</sup> cycle students to make first steps in a research oriented surrounding is an important move to support research oriented teaching.

Multimedia is a potent and helpful tool for teaching and for reducing the number of lectures but should not replace “hands on doing” by students during sessions of practical classes.

Due to the lack of collaboration between institutions, the same kind of e-learning project can raise in different Faculties (e.g. histology), leading to a loss of money and an unnecessary time consumption. Hence there could be incentives to integrated e-learning projects between faculties (ex. “Ecologie des élevages”).

## **4.3 ANIMAL PRODUCTION**

### **4.3.1 Findings**

Both, FUNDP and UCL provide for the 1<sup>st</sup> cycle students “on farm” teaching, giving them a first contact to the subject animal production.

The ULg has its own experimental and teaching farm in close proximity to the main campus of the FVM (see also 6.3.1). There a separate unit houses 80 sows engaged in a special breeding program and about 500 to 600 fattening pigs. This part of the farm is managed by an employee of a private company.

The farm further comprises a dairy unit with about 40 dairy cows plus heifers and calves and about 30 beef cows with some heifers and fattening bulls. On the premises there is also a teaching unit with horses, goats, sheep, rabbits and hens, which is predominantly used for zoo-like purposes (entrance fees from pupils and families with children visiting the unit).

In addition to the “farm animals” there are also 12 cows, 12 horses and 2 boars serving as “pedagogic animals” for practical work with students.

The students are obligatorily exposed to animals on the research and teaching farm in their 3<sup>rd</sup> year (VETE 0455, 10 hrs.) and 5<sup>th</sup> year when they must participate for one week in the morning for 3.5 hours; in the 6<sup>th</sup> year they are on the farm for one week, daily from 8:00 to 17:00. In addition students are on night shifts and weekends, mostly to observe and participate in parturitions and eventually in cesareans in beef cattle. Participation in daily work on the farm, e.g. milking the dairy cows, is voluntary.

In addition the students must visit production units during an extramural time (VETE 1021, two wks.).

The department of animal production at the FVM, ULg, is engaged in teaching in the 1<sup>st</sup> and 2<sup>nd</sup> cycle with biostatistics and mathematics offered in the first year, veterinary public health in the second year and domestic animal genetics, ethology, identification and judging of animals in the third year of the 1<sup>st</sup> cycle. Some of the subjects taught on the Bachelor level are taught only in Liege and not at the other faculties.

On the master level (2<sup>nd</sup> cycle) animal production among others comprises the subjects nutrition and feeding of domestic animals, applied animal ecology, good farm practice and relationship of veterinarians and farmers, economy in veterinary medicine and animal production and public health. According to the presentations and talks with the representatives of the department there are enough theoretical and practical hours for any student.

#### **4.3.2 Comments**

The 'hands on' exposure to production animals is limited. This is in part due to the limited number of animals available in respect to and the large student number. The on farm training in animal production is supplemented by farm visits to large and small ruminant and pig farms, along with work in the clinics where the students participate in practical tasks. The farm seems to be of great potential for practical training. However, the possibilities are apparently not fully used. Thus there is only a voluntary exposure to the milking procedure and other on farm activities. There is further the impression that clinical personnel from the faculty are not always on disposal and included in clinical work on the farm.

Consequently consideration must be given to a better use of available animals and facilities at the experimental farm. There must be a review of the tasks required of students as a mandatory part of the course rather than the current voluntary arrangement when it would benefit the student's practical skills and also their understanding of animal care. A system to ensure students follow cases sent from the farm through to necropsy should be introduced.

For the team it became not always clear, who in the department of animal production is covering which part of the broad spectrum of subjects. However, co-operation between members of the department seems to be good. Yet it seems to be almost no collaboration between different departments providing teaching in animal production. This must be improved for the benefit of the students. It is also not acceptable, that some subjects are taught on the bachelor level only at the FVM, ULg, with the effect that bachelors from the other three establishments are on a different level when entering the 2<sup>nd</sup> cycle (see also 4.1.3). The missing topics can only be assessed by self learning.

The Facilities at the experimental farm do not meet current animal husbandry requirements for hygiene and welfare (see also 6.3)

### **4.3.3 Suggestions**

- Teaching on the experimental farm could be increased above the present level with emphasis to expose students earlier in the study program.
- Exposure of the students to farm based processes encompassing the normal handling of animals (e.g. milking) should be on an obligatory basis.
- Co-operation of different department involved in teaching of animal production must be improved.

## **4.4 CLINICAL SCIENCES**

### **4.4.1 Findings**

Training in clinical sciences as defined by Directive 2005/36/EC amounts up to 1714 hours, with 795.5 hours devoted to supervised “in house” practical clinical training. Another 45 hours must be taken as an elective; the students can choose between an equine, companion animal or production animal module. The faculty further offers a 12 hour 3-course module to the 6<sup>th</sup> year students who want to conform with the radioprotection law. All clinical training occurs in an adequate and well equipped environment.

In the final year another 14 weeks (560 hours) of documented extramural training in a veterinary practice, animal hospital or center for referred cases is required, the time may be split in two 7-week periods spent at two different locations; however, during the visit the team was informed that this extramural training may also be absolved at a scientific institution, e.g. the Department of Food Sciences. Yet up to date only few students have made use of this opportunity.

With 0.77 and 1.36 ratios R6 and R7 are well within the range accepted so far for EAEVE approved institutions. This indicates that adequate clinical hands on training is provided. This is by at large restricted to the last (6<sup>th</sup>) year, which is solely devoted to clinical training. As half of the students are on extramural training during this period, the groups involved in intramural clinical work can be kept small with generally 1 to 4 students assigned to one patient.

Clinical lectures and practical training encompasses in a proper manner all relevant domestic mammalian species as well as birds, poultry and some reptiles. Yet bees and fish are only marginally touched.

During their intramural clinical training all students must participate in the off-campus clinical activities as indicated in chapter 6.2. However, these visits are by appointment only, not confronting the students with emergency situations as it would be the case if a regular ambulatory service would be offered. Consequently the second cycle students have only little exposure to obstetric problems in production animals.

Students are properly insured during intramural and extramural training as long as it is part of the official educational program.

#### **4.4.2 Comments and suggestions**

All aspects of clinical medicine seem to be well covered; students are exposed to a well organized and balanced clinical education in a good clinical environment, having access to enough companion and production animal patients, except – perhaps – to obstetric problems in production animals where teaching in obstetrics more or less seems to be of theoretic nature only. Clinical training predominantly occurs in the 6<sup>th</sup> year and groups are small enough to allow for adequate hands on training.

In case of cattle attempts should be made to compensate for this situation by making a better use of the experimental farm. In view of the modern means of communication it should not be a problem to assign students to an ongoing parturition in dairy and beef cattle also during the day. The faculty might further consider to improve the situation by adding to the already existing ambulatory services an ambulatory emergency service.

### **4.5 FOOD HYGIENE & TECHNOLOGY AND VETERINARY PUBLIC HEALTH**

#### **4.5.1 Findings**

The teaching and training of food hygiene and food technology at the FVM, ULg, is on a gradual process of improvement. In 2007-2008 and as described in SER, there were 95 hours (61 theoretical and 34 practical) assigned to the subject. An approved and progressive updating of food hygiene and food safety teaching and training with a new integrated “farm to table” approach has been proposed with the aim to reach a total of 122 hrs (75 theoretical and 47 practical) in the academic year of 2010-2011.

Food hygiene and food technology matters are mainly dealt with by the Department of Food Science (DDA) which is organized in four teaching and research units. Since the academic year 2008-2009, a 12hrs module of “Introduction to Veterinary Public Health” has been integrated in the 2<sup>nd</sup> year of the 1<sup>st</sup> cycle. This module is followed by the theoretical courses VETE1023-1 (technology, biological risks, chemical risks, with 35hrs of theory and 9hrs dedicated to visits to different species slaughterhouses and to a meat processing plant) and VETE1024-1 (hygiene, quality management systems, with 16hrs of theoretical training) in the 1<sup>st</sup> year of the 2<sup>nd</sup> cycle. In the 2<sup>nd</sup> year of the 2<sup>nd</sup> cycle another two blocks of related subjects are taught - course VETE0047 (10hrs theoretical and 12.5hrs practical classes addressing inspection of cattle, pigs and poultry) and course VETE0048-1 (12.5hrs course of practical work devoted to food quality management).

Though there is no indication in the SER that students have hands-on training in food inspection, it was possible to verify during the visit that rejected material from a local cattle and pig slaughterhouse was used to train students at a facility close to the public slaughterhouse where practical activities are held. Next to the public slaughterhouse there is a commercial meat processing plant where students are able to perform quality management work.

There were no indication that training in inspection of fish and seafood products, milk and milk products, eggs and honey is being performed.

Concerning other aspects of VPH, in particular zoonoses, toxicological and chemical residue and microbial resistance, it was possible to assess that most of these issues are scattered among the syllabus of different disciplines (epidemiology, microbiology, virology, parasitology, toxicology, pharmacology and food hygiene).

The teaching of zoonoses is mainly covered by the Department of Infectious Diseases (DMI). State veterinary medicine as related to VPH is included in a paraclinical week and is taught in a 5hr block of specific matters to 3<sup>rd</sup> year students of the 2<sup>nd</sup> cycle by the academic epidemiology staff. The team was informed that an original course on epidemiology of emerging infectious diseases - originally developed for continuing education programs - is about to be included in the undergraduate curriculum.

#### **4.5.2 Comments and Suggestions**

Although it is clearly mentioned and stressed in the strategic planning of the FVM (see SER, Annex 1), it seems that veterinary public health and other related matters, as for example preventive veterinary medicine, have not an adequate curricular share. For example at present food hygiene and food safety teaching and training totalize 95hrs corresponding to just 1.9% of the total curriculum (4936hrs). Even with the mentioned future expansion to be completed in 2011 that proportion will not be over 3.2% and must be considered insufficient.

However, it is clear from the discussions and findings of the team with DDA staff representatives that a sensible and sound strategy for teaching and training food hygiene and safety and other veterinary public health matters does exist. This comforts with the recent EC regulations (need for official veterinarian qualifications – Reg. N° 854/2004) and is in accordance with the objectives of the faculty-strategic plan of the FVM.

In this respect the following points should be considered:

- The present departmental organization gives only little support to the need for an integrated VPH teaching and training. Clearly the improvements brought upon by the DDA in undergraduate teaching and training and the ability to integrate important teaching components from other departments deserve support, by both, allocation of time and staff. The resulting improvements would give students the opportunity to get acquainted with hands-on inspection of other different livestock (small ruminants, rabbits) and game species, and to have teaching and training on milk and milk products, fish and seafood products, game and honey.
- The team also stresses that a careful evaluation should be done to promote the use of the future food technology pilot plant in the training of undergraduate students.
- It is strongly suggested that not only the FVM, ULg, but also the other three places offering 1<sup>st</sup> cycle veterinary education should provide a module on “Introduction to Veterinary Public Health”. The team was happy to get informed that this demand will be met during 2009/2010.

- Teaching of food hygiene/VPH in the 6<sup>th</sup> year is limited to a small block mainly related to regulatory aspects. Consequently awareness of students concerning day-one skills in the area of food hygiene/VPH at the time of the final examinations must be questioned. The team therefore suggests this subject be given more attention in the final year which should enhance the chances of graduating students in this field.
- To stimulate and motivate student for the areas of Food Hygiene and VPH, more elective subjects or optional disciplines related to these professional areas should be offered.

**Suggestion for a Category 2 deficiency:**

Until the faculty's strategic plan is fully implemented the lack of adequate teaching and training on milk, milk products and fish may be considered a category 2 deficiency.

## **4.6 ELECTIVES, OPTIONAL DISCIPLINES & OTHER SUBJECTS**

### **4.6.1 Findings**

#### **4.6.1.1 Electives**

**1<sup>st</sup> Cycle:** This cycle, offered by the four universities, shows a homology of around 80%. Hence 20% of the topics offered are specific for each place. They may be considered as electives as it is up to the student where they enter the first cycle. This also became obvious during the discussions with the students.

**2<sup>nd</sup> Cycle:** This cycle is only offered by the FVM, ULg. From a total of 4936 hrs 75 hrs (1.5%) must be taken as electives. The students can choose between the equine-, companion animal- and production animal module of 45 hrs each. There is a further 10 hr choice in basic sciences and a 20 hr choice in animal production.

#### **4.6.1.2 Optional subjects**

The FVM on a voluntary basis offers a 3–course–module to those 6<sup>th</sup> year students who want to conform with the Belgian law on radioprotection at graduation.

#### **4.6.1.3 Other subjects**

Students are subject to a total of 115 hrs (lectures, practicals, self directed learning) in scientific literature search and scientific English.

There is another lecture block of 14 hrs on “Animals and Society”.

### **4.6.2 Comments**

The philosophy of the FVM to maintain a general education in veterinary medicine and to allow for only little “tracking” has to be respected.

By offering a special module in radioprotection all students have the chance to be qualified in this particular field at graduation from the 2<sup>nd</sup> cycle which must be considered a professional advantage.

All students are exposed to scientific literature search and scientific English; apart from setting grounds for likely future scientific activities the communication skills of the students on an international level will be improved.

#### 4.6.3 Suggestions

None

## 5. TEACHING QUALITY & EVALUATION

### 5.1 TEACHING METHODOLOGY

#### 5.1.1 Findings

**General:** With the smaller number of students enrolled adequate face-to-face teaching has not been a problem in the first cycle at all four places (FUNDP, UCL, ULB, Ulg-FVM). All teachers are highly motivated, a situation which was reflected by the student's comments.

Despite of the high number of students enrolled in the 2<sup>nd</sup> cycle, the FVM has developed a good quality level face-to-face teaching program during the past years, largely due to a remarkable effort of all teaching staff and the special funds allowing the FVM to place additional academic staff. **However, the equilibrium remains fragile and any increase in the number of incoming students would be severely deleterious to the quality of teaching.**

In particular the following favorable points should be outlined:

- There is a large variety in teaching methods used (all establishments)
- Most teachers are very enthusiastic about teaching and there are good students - teacher interactions at all four establishments.
- There is a close supervision of the students during seminars, practicals and hands on clinical training, beginning from the early semesters and independent of the establishment.
- To structure the 6<sup>th</sup> year into two different periods (intra- and extramural) is unanimously considered and agreed by the team as a great improvement for students, provided that the number of cases in the CVU allows *each* student to be directly involved, not only on a voluntary basis. Extramural training in a veterinary practice is supervised by the faculty by requesting evaluation sheets from both, the student and the practitioner.

- The decision of the FVM to assign two teaching positions to multidisciplinary projects related to Evidence Based Veterinary Medicine, which is quite rare in Europe, can lead to a quick change in the attitudes.

**Learning objectives:** A point still to be met by all four establishments relates to the observation that the “day-one skills” and the related set of specific learning objectives are not yet systematically and clearly defined or written up, despite of the precise request of the reform committee at the FVM, ULg.

**E-learning:** After appointment of one multimedia and one e-learning technician at the FVM, a package of e-learning material has been made available for students, which has become an important resource to undergraduate and postgraduate students as well as to the veterinarians involved in continuing education. The WebCT platform begins to be used by some teachers, not only as a repository of PDF files, but also to share information with students via the forums and to allow on-line activities.

At FUNDP and UCL, the Claroline platform is quickly growing, leading to an increasing number of opportunities for the students to have an easy access to the syllabi, to the e-learning material and to the teachers via the forums. ULB uses a WebCT platform, which seems to be of benefit for the human medicine students, but less for the veterinary students.

**Evaluation of teaching:** The system developed for the evaluation of teaching by students is efficient, easy to use and the results are readily accessible and analyzable. Each topic is evaluated every third year. The students have the real feeling that it helps to improve the quality of teaching.

**Pedagogic qualification:** At the FVM, ULg, all newly appointed teaching staff must undergo a pedagogic and didactic training. Other incentives to improve teaching quality are not yet effective (i.e. “detitularisation”) or are not in use (awards).

### 5.1.2 Comments and Suggestions

Teaching quality must generally be considered as good. However, understanding and appreciation of students for the subjects and the way they are taught might be improved by defining the minimum theoretical and practical knowledge level required at the end of each course and at the end of the 1<sup>st</sup> and 2<sup>nd</sup> cycle.

A reduction in the number of compulsory face-to-face teaching hours in the 2<sup>nd</sup> and 3<sup>d</sup> year of the 1<sup>st</sup> cycle and to some extent also in the 2<sup>nd</sup> cycle in favor of active/interactive teaching methods, problem-solving and self-directed learning and access to foreign languages might further improve the teaching environment.

In parallel efforts in using the new information technologies could be improved.

## **5.2 TEACHING EVALUATION (EXAMINATIONS)**

### **5.2.1 Findings**

While there are mostly oral examinations at FUNDP, UCL and ULB, examinations at the FVM, ULg, are generally based on written tests (paper-based and/or electronic). However, also other forms of examinations may be applied, in clinical subjects they are also patient bound.

Main examination periods lasting for 18 to 30 days are in January and June following the winter and spring semester. Repeats can be taken during the September-examination period.

There were no reports about problems with the examination systems though the students seem to prefer oral to written tests.

### **5.2.2 Comments and suggestions**

The examination period for the 1<sup>st</sup> session seems to be rather long, particularly if tests are in writing. A shortening might be considered.

In ULg, in relation with IFRES, the Faculty could encourage access for all teachers to some information about evaluating not only knowledge, but also problem-solving and critical thinking via multiple-choice and extended matching questions.

## **6. PHYSICAL FACILITIES & EQUIPMENT**

### **6.1 Basic subjects and sciences, pathology**

#### **6.1.1 Findings**

##### **6.1.1.1 FUNDP, UCL, ULB**

Teaching at the FUNDP and UCL is within the Faculty of Sciences and at the ULB within the Faculty of Medicine. Within these faculties veterinary medicine is a separate unit (Department, School).

The rooms for practicals other than for dissection (e.g. physiology, biochemistry) are adequate for the number of students, their equipment is "standard" or even of high quality when derived from research projects. However, lockers and wardrobes seem to be missing or not easily accessible as students used lab benches to place their coats and jackets.

The anatomy dissection rooms in the three faculties do not reach a modern standard. The safety and hygienic status must be improved for the well being of students, assisting tutors and academic staff. The rooms are badly ventilated, yet the situation may become rather uncomfortable than hazardous as no formalin fixed specimens are used. There is no easy access to cleaning facilities and wardrobes. The trolleys and tables have to be renewed for efficient cleaning.

Laboratory animal facilities at ULB where students get some training are up to date and so are the farm facilities at UCL. However, the sheep farm at FUNDP used for student training is ready for some renovation, especially in respect to the student facilities and the AI station which gives a bad example of maintaining hygienic conditions.

#### **6.1.1.2 FVM, ULg**

Laboratory facilities and lecture halls for **first cycle teaching** impose no problems concerning student size. This also accounts for the clinical facilities and the experimental farm used in first cycle training. While there are no “adequacy” problems with the clinical facilities, the farm facilities are no longer adequate (see 6.3.1).

**Second cycle teaching** at the FVM imposes a problem due to the drastically increased number of students.

**Rooms for practical work:** As many rooms for practical work only allow restricted groups of students to be taught at the same time, repeated deliveries (up to 14 times) of the same courses during a semester become necessary and the teaching load of academics and staff is inadequately increased.

Rooms for practical work (e.g. parasitology, histopathology, clinical toxicology) start to show tear and wear. In the basic sciences buildings corridors are generally very narrow, interconnected with small stairways, and congested with different equipment standing along the walls. The team noticed a low standard of safety and hygiene management.

This is very different from the situation in the GIGA-building, which provides excellent facilities for graduate and postgraduate research training.

In particular the necropsy room does not meet adequate hygienic conditions as there is no separation between a clean area where students can change, a cleaning and disinfectant corridor and the “dirty” area where necropsies are performed.

Cadavers and other biological waste are adequately processed and removed by specialized companies.

**Lecture halls:** There are five well equipped (beamer etc.) amphitheatres with 120 to 180 seats used for frontal teaching. As these halls will not seat a full semester in the 2<sup>nd</sup> cycle, the FVM has access to six off-site university classrooms of larger capacity (200 to 600 seats).

### **6.1.2 Comments and Suggestions**

Facilities for 1<sup>st</sup> cycle teaching at all four places can generally be considered as acceptable to good. However, some special attention should be given to the anatomical dissection rooms (halls) in order to meet present day standards (e.g. ventilation, bio-security) and to the sheep farm at FUNDP, where at least adequate student facilities should be provided.

According to the number of students shown in Table 9.3, the number of places of all faculty amphitheatres at the FVM, ULg, is not adequate. However, there are virtually no problems as frontal teaching, though compulsory, is only attended by 50 up to 80% of the students.

In the 2<sup>nd</sup> cycle teaching at the FVM ULg, adequacy of laboratory and other practical class space in respect to student size can only be achieved by having organized a carousel-type of teaching timetable, which, however, seems to ask for too many repeats of the same subject taught. Undoubtedly such a situation with too many repeats will affect the quality of teaching, also the synchrony of theoretical teaching and training in practicals will be affected. Larger rooms for practicals with more instructors assisting in order to maintain group size could help solve the problem.

The design and construction of the facilities and the operating practice of some parts of the sites give concern in terms of health, safety and biosecurity. Thus escape routes in some parts of the buildings are blocked by equipment, adding to the problem of narrow corridors and stairways. Access of disabled students to many laboratory training facilities is virtually impossible and hence of specific concern. The team is aware that this situation can not be changed rapidly. However, the faculty is urged to envisage a solution of the existing problems within a reasonable length of time, as - if not solved – this situation might impose a major problem on the running of the faculty within the near future.

Safety and biosecurity protocols appear not to be appropriate for a teaching establishment.

Of particular concern is the necropsy room, which – at the time of visitation – was lacking essential hygienic measures giving rise to a high biosecurity risk. The dean is aware of the fact that this situation needs immediate correction!

**Suggestion for a category 1 deficiency:**

Inadequacy of necropsy room

It is further advised to implement a faculty wide safety and biosecurity plan by:

1. providing primary instruction and some follow up instructions for every person enrolled by the faculty and likely to handle biological, chemical, radioactive or other hazardous material and
2. by making an interdisciplinary internal audit of the rooms devoted to practical work and related facilities, on the aspects of hygiene, cleaning, safety procedures and instructions, and to ensure that everybody sticks on.

## **6.2 CLINICAL FACILITIES & ORGANISATION**

The clinics consist of two departments, the Dept. of Clin. Medicine for Companion Animals and Horses (DCA) with a special unit dealing with birds, poultry, rodents and other exotic species (reptiles etc.) and the Dept. of Clin. Medicine for Production Animals (DCP). The unit of diagnostic imaging serves both departments. There is no

central pharmacy serving all clinical units and the laboratory entitled “central clinical laboratory” is only used by some clinical units, but not by the companion animal clinic (DCA). Each department is headed by a president responsible for the running of his department. The departments are embraced by a purely administrative parallel structure, the University Veterinary Clinic (CVU), which – as the team was informed – is responsible for the financial aspects concerning clinical income, e.g. by acquiring additional patients.

### 6.2.1 Findings

The facilities date back to 1991; there is enough space to hospitalize animals, however tear and wear are showing up, also imposing hygienic problems, and in many aspects the facilities do not meet up to date requirements any more. The narrow corridors, many staircases and lack of elevators may be considered as a safety hazard, it hinders a proper patient flow, particularly in the DCA, and is an obstacle to include certain disabled students in clinical education. There is not a common electronic recording system and the team experienced that it is difficult to retrieve data.

**DCA**; all units (companion animal, equine, birds and exotics) are equipped with up to date standard equipment. So far CT diagnosis was by using the equipment in the medical faculty (on appointment) but a respective instrument has been ordered and will be available within the next few months, also serving the needs of equine medicine.

The **companion animal clinic** is divided into an internal medical section and a surgery/reproductive section as all reproductive surgery (e.g., ovariohysterectomies, castrations) is done by specialized veterinary surgeons. As the permanent staff of the unit can not cover all specialties, external specialists (Diplomates of European Specialist Colleges) for ophthalmology, cardiology, dentistry and dermatology come in on a regular basis.

There is a common polyclinic for all incoming patients. Depending on the appointments made they are either first examined by a veterinary student or directly assigned to the responsible veterinarian.

The examination rooms are generally large enough to allow students participation in the examinations; however, some of the rooms are missing the equipment for basal examinations, e.g. taking blood samples, making it necessary to move with the animal, the students and possibly the patient owners to a different room or to send somebody out to get the necessary instruments.

The unit performs bedside clinical analysis; samples exceeding their capacity are sent to a commercial laboratory as the central clinical laboratory of the FVM is not used by the DCA for unknown reasons. The unit is equipped with two full surgery rooms and one for reproductive surgery, it provides adequate cages for hospitalization of animals including an intensive care unit which, however, does not meet the latest standards.

It is also equipped with an isolation unit for hospitalization of one dog and several cats. However, when visited this unit was not ready for use, no precautions were tak-

en to avoid contaminations in view of the situation that the entrance to the unit is not separate from the general clinical area. The team was told that a new unit at a more adequate location is being planned.

Drugs for treatment of animals are stored in a separate room with limited access. Within this room there are properly locked lockers for opiates, the other drugs are stored in a metal and also locked cupboard; there was no cooling. The team encountered that it took quite some time to find a responsible person (nurse) having access to the drugs and handing it over to the veterinarian requesting it for ad hoc treatment. Vaccines are kept separately in a refrigerator.

The unit provides a 24 hour service with students involved. If an intern can not cope with a problem he must call the resident on alert.

In addition the unit provides a service for animal shelters where last year students can perform castrations and ovariohysterectomies. This offers excellent opportunities for students but the service should rather be called a neutering than an ambulatory service.

The **diagnostic imaging unit** is in an adjacent building one floor lower. This hampers work flow and imposes hygienic problems, particularly when already anaesthetized patients have to be carried over there.

The unit provides a room where X-ray can be used by non unit staff during out of hours time. However, a specialized veterinarian of the unit is always available on call.

The **equine unit** is similarly structured as the companion animal unit. There is ample space for examinations, treatments and hospitalization of horses. The two surgery rooms allow for clean (orthopedical) and less clean (abdominal) surgery. A blacksmith operates within the clinic.

The handling of drugs and of night- and weekend shifts resembles that in the small animal unit.

The **DCP** (Dept. of Clin. Medicine for Production Animals) neither lacks room nor equipment, the handling of drugs is as in the other clinical units (own pharmacy). Due to the decreasing number of incoming patients some boxes are used to house and teach on the "pedagogic horses" of the FVM.

Neither the equine unit nor the DCP have adequate isolation facilities; these are, however, being planned.

Apart from the incoming patients all students during the clinical year (year 6) must participate in the following three bovine herd health programs: herd fertility, mammary health and general health. Visits are on 5 days per week and vans for transportations of up to 3 to 5 students are available,

## **6.2.2 Comments and suggestions:**

When visiting the clinical premises the team became not aware of the role assigned to CVU; it looked as if each clinic would operate on its own, raising the question of a coordinating body.

In general the clinical services provided allow good to very good undergraduate and postgraduate education, involvement of students in hands on training must be considered good. However, the buildings show wear and tear, making maintenance of hygienic conditions more and more difficult. The faculty is strongly urged to develop plans to deal with these problems, also in order to solve the problems of work flow and better communication between clinical units. Such a concept should also account for the fact, that the veterinary teaching hospitals presently work at a 100% capacity concerning student teaching and that an increased number of students might blow up the system.

It is somewhat strange that a faculty of the size of the FVM has not established a central pharmacy and that the "Central Clinical Laboratory" is not used by all clinical units. Both facilities could not only improve the services provided by the FVM but would also support teaching, e.g. how to adequately run a "veterinary pharmacy" and an up to date Central Clinical Laboratory.

Clearly the electronic patient recording system as applied in the clinical units (CVU) does not meet modern requirements; this is not only the impression of the team but was also clearly pointed out by members of the academic staff. It is not possible to adequately retrieve individual patient data, a retrospective data analysis to assess certain epidemiologic or other research based questions would be very difficult if not impossible.

### **Suggestion of a Category 2 deficiency:**

Lack of an adequate patient recording system. It is strongly suggested to improve the system to a level as has been reached in some other European veterinary faculties.

### **Suggestion of a Category 1 deficiency:**

The equine and production animal units miss isolation facilities, the isolation facilities of the companion animal unit are all but adequate. This imposes a major problem and the faculty is urged to solve it as soon as possible. The team, however, was pleased to hear that adequate animal isolation facilities will be provided soon.

## **6.3 Facilities Animal Production and Veterinary Public Health**

### **6.3.1 Faculty Farm and other facilities**

The farm dates back to 1981 and comprises more than 60 ha of pasture, the design of the buildings does not meet modern standards any more. The buildings show, at least in part, a poor state of upkeep, some parts of the site and the operating practice give concern in terms of health, safety and biosecurity, challenging the appropriateness of the facility for teaching purposes. It was particularly surprising that the sow stall system was still in place a decade after the decision of the EU to ban them.

Students do all meat inspection and food safety and quality training in commercial slaughterhouses and meat processing plants.

Adequate laboratorial facilities exist at the FVM for training in food safety and other VPH issues. A projected meat technology pilot plant including a unit meeting high biosecurity safety requirements is due to be in operation early in 2010.

### **6.3.2 Comments and Suggestions**

It is considered a must that the FVM will comply with EU-legislation in respect to animal housing as soon as possible, also to the benefit of student education, particularly concerning the teaching of animal welfare and ethology.

#### **Suggestion of a Category 2 deficiency:**

Not meeting EU-legislation in respect to animal housing must be considered a category 2 deficiency.

## **7. ANIMALS & TEACHING MATERIALS OF ANIMAL ORIGIN**

### **7.1 Findings**

#### **7.1.1 First cycle with teaching at FUNDP, UCL, ULB and FVM**

In topographical anatomy the dogs, horses and cattle are owned by the respective university or belong to students; they are only used in seminars and are not anaesthetized or subjected to any invasive technology.

Otherwise anatomy is taught on pedagogic models and fresh or frozen/thawed corpses and specimens for dissections, often aided by multimedia teaching tools with, however, some species being underrepresented at FUNDP, UCL and ULB (see also 4.2.1).

In physiology the animals used for teaching included horses (e.g. on treadmill in FVM), sheep and other farm animals at FUNDP and UCL and rodents and dogs at ULB.

#### **7.1.2 Second cycle with teaching only at the FVM**

##### **7.1.2.1 Teaching animals**

###### **7.1.2.1.1 General**

Production animals and horses available for teaching are located on the FVM site and at the experimental farm (CARE). The DCA further houses a colony of beagles and 12 teaching horses are available for 1<sup>st</sup> and 2<sup>nd</sup> cycle teaching..

Every year the FVM purchases a “teaching cattle herd” of 12 cows. In addition the dairy and beef cattle herd as indicated below is available for teaching.

#### **7.1.2.1.2 Experimental farm (see also chapter 4.3)**

For pig teaching the experimental farm houses

- 2 Boars (Practical work – 4th year)
- 80 Sows (Supervised work – 5th year)
- 38 Piglets/Feeder pigs (Supervised work – 5th year)
- 1 Vietnamese pot-bellied pig (Practical work – 6th year)
- and additionally about 500 fattening pigs (Supervised work, 4 – 6<sup>th</sup> year)

For cattle teaching the farm houses around

- 40 dairy cows
- 30 beef cows
- Young stock, heifers and fattening cattle
- A small milking parlor is provided for the dairy herd.

There is also a pedagogic unit with

- Goats (3) and sheep (2)
- Rabbits (20)
- Cockerel and hens (3)
- Horses (5)

These animals are used for practical training in animal production (genetics, animal feeding, ecology, ethology, etc) and clinical education (eg caring for sick and parturient animals, reproductive examinations) and for monitoring visits for sanitary purposes.

The facilities are also used for experimental purposes related to the study of nutrition, or genetic research in pigs.

#### **7.1.2.2 Clinical and necropsy case load**

Clinical cases result from patients referred to the clinics or brought there directly, or from visits to farms in the vicinity of Liege.

The farm visits are within the herd health system (cattle, pigs) provided by the FVM (see 6.2), they are not on emergency calls as the FVM does not maintain a “Mobile Clinic” in the proper sense of this word.

Apparently the FVM does not have access to rabbit production units or commercial fish production; there is a limited access to poultry production units.

A special training program offered by the DCA is a “neutering service” in cooperation with local animal shelters. Participation of 6<sup>th</sup> year students is compulsory and the total case load from 2007 – 2008 was 869; thus each student had the opportunity to perform this type of reproductive surgery by her/himself under the immediate supervision of a veterinary surgeon.

The denominators obtained for ratios R11 to R20 were as follows:

<b>Ratio</b>	<b>Type</b>	<b>Denominator</b>	<b>Lower limit (80% quantile)</b>
R11	nsga/no food prod anim seen at faculty	1.80 <sup>A</sup>	2.97
R12	nsga/no individ food anim cons outside Faculty	13.35	12.84
R13	nsga/no herd health visits	1.11	0.31
R14	nsga/no equine cases	6.73	2.29
R15	nsga/no poultry-rabbit cases	0.52 <sup>A</sup>	0.64
R16	nsga/no comp anim seen at faculty	37.71 <sup>A</sup>	54.61
R17	nsga/no flock poultry rabbit seen	does not apply	
R18	nsga/no necrop food anim-equine	2.98	0.75
R19	nsga/no poultry-rabbits	2.30	0.34
R20	nsga/no necrop comp anim	2.44	1.50

nsga: number students graduating annually <sup>A</sup>below lower limit

A further finding relates to the fact, that the FVM is actively involved in clinical research on marine mammals and the management of animals in tropical conditions.

## 7.2 Comments

Concerning the physical status of the experimental farm (CARE) see 6.3.1.

There is a good stock of animals and a system of student attendance on the farm at nights and weekends when they observe and assist with parturition. However, better use of the facilities could be made as indicated in 4.3.2.

The FVM in general provides an adequate clinical and necropsy case load for student training. This particularly accounts for the animals available for necropsies and also for food producing animals. Though the denominator for R11 is below the lower limit, this by at large is compensated by the number of individual food-animal consultations outside the faculty (R12).

However, as is indicated by R16, the number of companion animals is somewhat low when compared to other approved establishments. It also must be noticed that the FVM apparently lacks access to rabbit production units and commercial fish production.

On the other side it must be considered a great chance for interested undergraduate and graduate students to get involved in clinical, research based work on marine mammals and animals in tropical climates.

### **7.3 Suggestions**

- The FVM is encouraged to increase the companion animal load, e.g. by gaining a higher attractiveness due to providing a better clinical environment and by further improving clinical services (see 6.2)
- The FVM is further encouraged to continue to develop its expertise on fish diseases, e.g. by gaining access to production units. Similarly access to rabbit production units should be gained and access to poultry production units improved.

## **8. LIBRARY & EDUCATIONAL RESOURCES**

### **8.1 Findings**

The University of Liège has centralized library services. The Life Sciences section (BSV) is part of the Library Network. Apart from the textbooks all journals and other documentation services have been moved to the new site at the Centre Hospitalier Universitaire (CHU) where they will be at the students' disposal along with the library of medicine, psychology and biology. Due to increased space and the availability to purchase up to 20 copies of textbooks, students will have easier access to required literature. Other than described in the SER the centralized services offer access to 12,000 electronic journals and around 30,000 books.

Due to moving the library there will be considerably more reading desks on the former BSV/MV main library facilities, together with more rooms for working groups and isolated spaces for work in privacy, as well as an increased number of computers.

As a result of the availability of university intranet (VPN-system) and WIFI at faculty and university buildings, scientific documentation is easier accessible than it used to be.

In most departments and sectors there remain so-called discipline libraries.

The live science Library is open Monday to Friday from 8:30 to 19:00 as well as Saturday mornings, whereas the BSV/MV library is closed on weekends.

The new library is well staffed with 22 specially trained staff members (equivalent of 10 FTE), 6 of them responsible for teaching both students and staff the "scientific/critical evaluation" approach.

### **8.2 Comments**

Students at the FVM have easy access to excellent library facilities, meeting all demands for undergraduate and postgraduate education.

### **8.3 Suggestions**

None

## **9. ADMISSION & ENROLMENT**

### **9.1 Findings**

Students who want to obtain a degree in veterinary medicine need at least a diploma of the secondary education of the CFB or an equivalent diploma as those delivered by most countries of the European Union to start bachelor studies.

The admission fee is around 800.-€ and all students enrolled are equally treated.

While there were no restrictions concerning the number of students admitted until 2003, admission of students entering the veterinary curriculum was limited to 250 from 2003 to 2006. Due to the large percentage of foreign (non-resident) students enrolled, the rules of admission were again changed in 2006, limiting the admission of non-resident students to 30%.

From 2003-2006 admission was granted by a competitive examination. In 2006 “admission by examination” was replaced by “admission by residency”, i.e. all applications from Belgian residents are to be accepted plus 30% from non-residents. This restriction process is under observation until next year to assure that no discrimination on an EU-citizen takes place.

All students having successfully passed the 1<sup>st</sup> cycle in one of the four establishments must be accepted as 4<sup>th</sup> year students in the 1<sup>st</sup> year of the 2<sup>nd</sup> cycle at the FVM, ULg.

These new regulations coming into effect in 2003 have drastically reduced the “plethora” of students, the FVM, ULg, had to handle in the 2<sup>nd</sup> cycle.

In respect to student numbers it is somewhat difficult to follow the figures in the SER. Thus in the SER, FVM, ULg, the total number of undergraduate students is given with 1462 in table 9.1 and with 1206 in table 9.3 with the latter figure having been used to calculate the ratios.

As given in the SERs of FUNDP, UCL and ULB, the average number of students graduating there after having passed the 1<sup>st</sup> cycle is 53, 29 and 18; there is a large drop out rate after year 1. From the SER, FVM, ULg, it can be deduced that in the last two years on average 176 students were admitted to year 1, with virtually no drop outs during the 1<sup>st</sup> cycle.

These figures would result in an average number of around 280 students per year during the 2<sup>nd</sup> cycle. Thus the figure indicated in table 9.4 with an average of 321 students graduating annually can only be understood if a bow wave of students resulting from the former plethora is considered.

During the visit the team did not become aware of any differences in the qualification and success rate of the 2<sup>nd</sup> cycle students in respect to their origin (FUNDP; UCL; ULB; FVM, ULg).

All four establishments provide a sort of tutorial system allowing students to seek for guidance and advice.

## **9.2 Comments and suggestions**

The present system of student admission apparently allows all Belgian students applying to enroll in veterinary medicine. To control the huge number of in particular French applicants, a quota of 30% has been set and assignment is by “lottery”. It may be considered a pity that the former examination based selection system has been abandoned. However, as for political reasons all Belgian applicants have to be admitted, it makes no sense to make selection of non-residents by examinations.

As the premises at the FVM are constructed to comfortably house about 140 students (see introduction) per year, the FVM might consider an entrance examination for the 2<sup>nd</sup> cycle.

In any case, if the 30% non-resident limit has to be rejected in the next future by the European Court of Justice, all four Faculties must consider another efficient system in order to avoid any return to a “plethora”.

## **10. ACADEMIC & SUPPORT STAFF**

### **10.1 Findings**

All findings reported apply to the present number of students resulting from the 2003 and 2006 modifications in the admission system.

There is a good teaching staff to student ratio at the FUNDP, UCL and ULB.

The FVM, ULg, where all students merge in the 2<sup>nd</sup> cycle, for a long time suffered from a “plethora” of students. To cope with this situation special funds were allocated to the FVM and an important part of this budget was used to enroll additional staff, so that the teacher to student ratio improved.

The ratio (R1) of “Total academic FTE in vet. training“ vs. “no of undergraduate students” is 11.2 which is above the upper limit of 8.689. Consequently with denominators of 11.86 ratio R3 (no total veterinary surgeons FTE in vet training vs. no undergraduate students) is above the current upper level of 10.461.

To calculate ratio R4 (no Total vs. FTE academic staff in vet training vs. no Students graduating annually) the average figure of graduates used should be 321 (tab. 9.4 SER); with this figure R4 is 3.1 which exceeds the present upper limit of 2.682.

Amongst the teachers more than 90% are veterinary surgeons, meeting the criteria set by the SOPs and also R5 (academic vs. non academic staff) is within the range observed so far.

At the FUNDP, UCL and ULB the denominators for ratio R1 are all below the upper threshold level. However, with denominators of 35.56, 29.5 and 20 the upper threshold level of 10.464 for R3 (no total veterinary surgeons FTE in vet training vs. no undergraduate students) is by far exceeded.

The support staff vs. academic staff ratio (R5) is around 0.3 at FUNDP, UCL and ULB and is around 1 at the FVM, ULg. Among teachers, the number of diplomates of European colleges of specialists can be considered as very good at the FVM, ULg.

## 10.2 Comments and suggestions

Due to the special situation of veterinary education in Belgium with four places offering the 1<sup>st</sup> cycle and with all graduates merging in the 2<sup>nd</sup> cycle at the fourth place, it is somewhat difficult to apply the ratios delineated so far from approved establishments offering a straight forward curriculum at one faculty only.

Without making further distinctions it is also not possible to compare the teaching situation at FUNDP, UCL and ULB with that at the FVM, ULg, as they only include the teaching staff involved in the first cycle, which is dominated by basic subjects and basic sciences.

Generally spoken it can be said that the teacher to student ratios (R1; R3) is somewhat above the present upper threshold and should be improved at the FVM, ULg, while R1 is easily met at the other three places but not R4, indicating that the three universities must secure an adequate veterinary teaching background as is also requested in chapter 2.2.

Ratio R4 (no total vs. FTE in vet training vs. no students graduating annually) only applies to the FVM, ULg. With 2.98 or 3.1, depending on the number of undergraduates used for calculation, the denominator for this ratio is also somewhat too high but at an acceptable level, particularly when considering that the number of students enrolled will stabilize and rather decrease than increase, in the near future.

It is important that ratios R1-R3 and R4 are *not only maintained but improved*, also in order to ensure or reinforce the clinical- and public health-oriented quality of teaching, even in the early semesters.

At the FVM, ULg, from a strict arithmetic point of view, ratio R5 (n total FTE academic staff in veterinary training vs. no FTE support staff in veterinary training) can be considered as correct, that is comparable to other approved faculties. However, some staff express the feeling that, due to the recent increase of the academic staff, the number of positions for the support staff did not increase in the same proportions, so that their workload increased.

The ratios of around 0.3 for R5 at the other three locations indicates that more support staff would be needed. However, as the qualification of graduates does not give rise to concern, this is not an issue affecting the evaluation.

As far as the team could learn, the continuing education of the support staff seems to be underdeveloped.

## **11 CONTINUING EDUCATION (CPE)**

### **11.1 Findings**

The professional ethical code indicates that any Belgian veterinarian is obliged to attend sessions of continuous education. Presently no structured or systematic system of CPE is offered by the FVM.

FVM, however, organizes some specific educational courses according to EU legislation in accordance with national royal decrees. Individual members of the faculty participate on a personal basis in different educational activities of different societies, particularly of Formavet, but with no systematic approach.

### **11.2 Comments and suggestions**

Though the CPE offered in the French speaking part of Belgium seems to meet the requirements set up by the Wallonian committee veterinary college, FVM might profit from organizing some FVM controlled courses on very special faculty related topics within the CPE program.

## **12. POSTGRADUATE EDUCATION**

### **12.1 Findings**

#### **12.1.1 Academic track**

In addition to cycle 1 and 2 of the basic program leading to the graduation as a veterinary surgeon the FVM offers an additional “Advanced Master” degree (MC) to students, who have successfully finished the 2<sup>nd</sup> cycle.

A MC in specialised veterinary medicine (MV MVS) is offered as follows:

- Clinical science option,  
Companion animal module  
Horse module  
Ruminant module
- Veterinary public health option,  
Food science module

Advanced Master courses run every year. The course option “Veterinary Public Health” has been running with an average of 10 students per year and the course option “Clinical Sciences” is compulsory for all registered interns.

The other two advanced master courses offered are “Management of Animal and Plant Resources in Tropical Climates” (MC GRAVMT) and “Aquaculture” in collaboration with the Faculty of Science, ULg, and FUNDP.

The advanced master course of management of animal and plant resources in tropical climates (MC GRAVMT) has 25 students, half of them working in other universities.

A PhD (Doctor of Veterinary Science) may be obtained via the 3<sup>rd</sup> cycle doctoral training programs which have a minimum duration of three years and require the accumulation of 60 credits from advanced courses plus the completion of a research project. Students usually apply for 4-year scholarships from different research supporting institutions. It is expected that PhD students have at least one paper accepted or published before they can defend their thesis.

The PhD program is an individually tailored research education program with the choice of research being subject to arrangements with a FVM supervisor. FVM organizes and manages the individual programs through a doctoral committee

At present there are around 160 registered PhD students, many of them from overseas. The proportion of veterinarians working for this degree is around 85%.

### **12.1.2 Professional track**

Presently, there are 16 interns and 14 residents representing five different European Colleges of Veterinary Specialization.

All resident programs are certified by the European Board of Veterinary Specialization, interns have the same status as PhD students.

In addition FVM organizes in collaboration with FELASA courses on Experimental Laboratory Animal Science, Category C, for scientists and others who need to work with these animals. Around 70 scientists participated in these 90hrs courses held in the last five years.

## **12.2 Comments and Suggestions**

The FVM offers a wide-spectrum post graduate education program on both, the academic and non academic track. As became evident during the interviews with the postgraduate students, some of them attempt to work for a PhD as well as the title of a European Diplomate in Veterinary Specialization. The FVM is encouraged to go this way and to support these students as they will become the backbone of future clinical sciences.

## **13 Research**

### **13.1 Findings**

Research in veterinary sciences is performed at all four places and involvement of 1<sup>st</sup> cycle students is supported. However, due to the structure also encompassing the 2<sup>nd</sup> cycle, visibility of research was much better at the FVM, ULg.

Involvement of undergraduates:

In the 2<sup>nd</sup> year a course in “introduction to documentary research and scientific English” (50h CT, 3 credits) is offered at the FVM, ULg, to all students.

In 2003-2004 the FVM inserted into the 5<sup>th</sup> year program a group project (3-5 students, 2 credits) intended to help develop students' transversal skills. This project consisted of a part involving bibliographic research or field research, the production of a written document, and an oral presentation by the group to a committee made up of members of a department.

In 2008-2009, by direct application of the “Bologna process” and the graduating of a master degree, this activity is to be replaced by an individual end-of-studies project (TFE). All students have to perform a project in form of a thesis which may either be research-, clinical cases or bibliography orientated. Each member of the teaching staff that holds a doctor's degree (PhD) will be assigned 4 students from the 5th year and 6th year, for a total of 8 permanent supervisees.

Involvement of post-graduates:

The doctoral training (PhD) takes place in the 3<sup>rd</sup> cycle and is one of the fundamentals of research performed at the FVM.

Some of the research students also work as assistants, others receive a scholarship from the ULg, and still others receive support from a third party or a foreign government.

Placing of these students relies on a strong research program of the faculty with an annual income of about 12 to 15 M€.

In this respect it is also noteworthy that three research groups of the FVM are integrated in the “Groupe interdisciplinaire de Genoprotéomique Appliquée” in the new GIGA-research centre. Furthermore other research groups of the FVM are integrated in other interfaculty and interdisciplinary research centers.

### **13.2 Comment and Suggestion**

The number of prizes awarded to students for research effort is highly appreciated as it is considered a stimulus to work for excellency. Otherwise the FVM runs a strong research program which can be considered outstanding.

Hopefully the introduction of an obligatory master thesis will motivate students to continue in postgraduate education.

## **14. EXECUTIVE SUMMARY**

### **1./2. Objectives, Strategy and Organization**

The 6 year curriculum follows the Bologna declaration and is split in a 1<sup>st</sup> 3year cycle leading to a BA-degree and a 2<sup>nd</sup> 3year cycle leading to a MA-degree. While the 1<sup>st</sup> cycle is offered by 4 universities, the 2<sup>nd</sup> cycle is only offered by the FVM, ULg.

In view of the lack of communication between the four establishments there is a strong recommendation to establish a common steering group (see 4.1.2) to secure equal opportunities for students when entering the 2<sup>nd</sup> cycle.

#### **Suggestion of a Category 2 deficiency:**

Lack of steering group for the four establishments.

### **3. Finances**

Financial support concerning operational expenditure seems to be sufficient. However, in order to reach the positive range for the academic staff/student ratio (R1, R3 see 10.2) further funds to employ academic staff should be made available. This also accounts for the maintenance of buildings. On the other side research funding is very impressive.

### **4. Curriculum**

The curriculum is well organized and in principle covers all subjects laid out in Directive 2005/36/EC.

The co-education of veterinary students at FUNDP, UCL and ULB with students of other disciplines was found to have more positive than negative effects. However, the development of integrated e-learning projects between the four establishments is suggested.

Concerning animal production the curriculum should allow for more “hand’s on exposure”, e.g. by making better use of the research farm facilities. Due to the number of departments involved in teaching this subject, a better coordination is suggested.

Clinical sciences are well and adequately covered though the FVM might consider to still improve the situation by establishing a 24hr on duty ambulatory service.

In the present curriculum more hours have been assigned to Food Hygiene and Public Health. It is strongly suggested to come up with the planed expansion as soon as possible and to place some teaching on this matter also into the 6<sup>th</sup> year.

The philosophy of the FVM to maintain a general education in veterinary medicine and to allow for only little tracking has to be respected.

As a very positive point it should be mentioned that all students are exposed to scientific literature search and scientific English.

**Suggestion of a Category 2 deficiency:**

Lack of adequate teaching and training in milk, milk products and fish (see 4.5.2).

## **5. Teaching Quality and Evaluation**

The enthusiasm of the teaching and support staff is impressive, as is the involvement and participation of the students in the learning process.

The obligation of newly hired academic staff to improve its pedagogic qualification is highly appreciated as well as fact that there is a substantial number of Diplomates of European Specialist Colleges involved in teaching. Teaching might further be improved by defining the minimum theoretical and practical knowledge level required at the end of each course and at the end of cycle 1 and 2 and by reducing the hours of frontal teaching (see 5.1.2).

## **6. Physical Facilities and Equipment**

### **6.1 Basic Sciences, Pathology**

Though the facilities in general can be considered as good, some special points relating to the FVM, ULg, must be raised.

The design and construction of the facilities and the operating practice of some parts of the sites give concern in terms of health, safety and biosecurity. Thus escape routes in some parts of the building are blocked by equipment, adding to the problem of narrow corridors and stairways. Access of disabled students to many laboratory training facilities is virtually impossible and hence of specific concern.

Of particular concern is the necropsy room, which – at the time of visitation – was lacking essential hygienic measures giving rise to a high biosecurity risk. The dean is aware of the fact that this situation needs immediate correction!

**Suggestion of a Category 1 deficiency:**

Inadequate necropsy room (see also 6.1.3).

Beyond that the faculty is urged to envisage a solution of the existing building problems within a reasonable length of time, as – if not solved – this situation might impose a major problem on the running of the whole faculty within the near future.

The faculty is further advised to implement a faculty wide safety and biosecurity plan (see 6.1.2).

## 6.2 Clinical facilities and organization

The veterinary teaching hospital altogether allows for a high standard service and serves as a powerful platform for applied research and good teaching. However, there is still room for improvement.

- establishment of a common patient recording system allowing better retrieval of data,
- establishment of a functioning central and adequately equipped clinical laboratory,
- work towards a central pharmacy serving all clinical units.

The equine and production animal units miss isolation facilities, the isolation facilities of the companion animal unit are all but adequate. This imposes a major problem and the faculty is urged to solve it as soon as possible. The team, however, was pleased to hear that large animal isolation facilities will be provided soon.

### Suggestion of a Category 1 deficiency:

Lack of adequate isolation facilities (small animals) and isolation facilities in general (large animals) (see 6.2.2).

### Suggestion of a Category 2 deficiency:

Lack of common adequate patient recording system (see 6.2.2).

## 6.3 Facilities Animal Production and Veterinary Public Health

Of concern is the farm used for student training, which is in a somewhat poor stage, not meeting modern standards.

It is particularly not acceptable that the FVM does not comply with EU-legislation concerning housing of animals.

### Suggestion of a Category 2 deficiency:

Lack of compliance with EU-legislation in housing animals on experimental farm (see 6.3.2).

## 7. Animals and Teaching Material of Animal Origin

Adequate and good material is available for 1<sup>st</sup> cycle teaching. The 2<sup>nd</sup> cycle teaching only affects the FVM and in general an adequate clinical and necropsy case load is provided. This particularly accounts for the animals available for necropsies and also for the food producing animals.

As is indicated by R16, the number of companion animals is somewhat low when compared to other approved establishments. The FVM is encouraged to increase the companion animal load.

The FVM apparently lacks access to poultry and rabbit production units and commercial fish production, access to poultry production units is poor. The faculty is encouraged to close this gap.

## **8. Library and Educational Resources**

Excellent facilities are provided.

## **9. Admission and Enrolment**

The present and recently changed system for student admission reduced the former “plethora”, resulting in a still too high but acceptable load of students entering the 2<sup>nd</sup> cycle. However, any further increase would disturb the critical balance between teaching capacity and the number of students.

## **10. Academic and Support Staff**

Not so much the absolute figures but the ratios R1 and R2 indicate that the 2<sup>nd</sup> cycle teaching at the FVM as quantified by FTE is somewhat below the standard of other EAEVE – approved faculties. The university is urged to improve this situation.

## **11. Continuing Education (CPE)**

The FVM is adequately involved in CPE though the offering of some specific, faculty related topics, might form an extra highlight.

## **12. Postgraduate Education**

The FVM offers excellent postgraduate education on both, the academic and professional track.

## **13. Research**

Research in veterinary sciences is performed at all four establishments.

Due to the nature of the visit the team got more insight in the research performed at the FVM, ULg. There is a strong research program and the funds acquired can be considered outstanding.

**ECOVE decision: NON-APPROVAL**